

REMARKS

Applicant has cancelled claims 1-15, 32-81 and 100-161 without prejudice.

Claims have been amended to recite that the materials of the chip are thermoplastic and not in another state of matter such as a non-thermoplastic cellulose material. Support for the amendment is found in claim 82 as filed and throughout the specification.

The Examiner has rejected claims 16-31 and 82-99 under 35 U.S.C. § 103(a) over Sun et al., U.S. Patent No. 6,689,378 in view of Yahiaoui et al., U.S. Patent No. 6,613,703 or Videau, U.S. Patent No. 5,696,186. The art cited by the Examiner is irrelevant with respect to a blend in the form of a thermoplastic resin composition, a chip form of a thermoplastic blend of a polyolefin and a polyolefin grafted with a cyclodextrin (CD) compound. Applicants respectfully traverse the rejection.

To establish a *prima facie* case of obviousness, three basic criteria must be met:

- (1) There must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine the reference teachings without hindsight to the claimed invention.
- (2) There must be a reasonable expectation of success.
- (3) The prior art references must teach or suggest all the claim limitations.

See In re Vaeck, 20 USPQ2d 1438 (Fed. Cir. 1991); MPEP § 2143 et seq.

Sun et al., U.S. Patent No. 6,689,378, does not teach a thermoplastic material, a chip form of a thermoplastic, a blend of a CD modified thermoplastic and a thermoplastic resin. Sun et al. teach grafting cyclodextrin compounds to a cellulosic fiber using a crosslinking agent. The crosslinking agent can be a maleic anhydride substituted polyolefin. The resulting product is cellulose with a cyclodextrin grafted through the polymer. The resulting modified cellulose is not thermoplastic. Further, the cyclodextrin is bonded to the cellulose using crosslinking agents in a reaction sequence entirely different than the cyclodextrin grafting reaction to a polyolefin. Sun et al. are entirely different than the claimed invention since the claimed invention relates to grafting a cyclodextrin to a thermoplastic polyolefin material and then blending the grafted polyolefin into a polyolefin the resulting product in a thermoplastic resin that can be formed into a variety of products. Sun et al. neither teach grafting a

cyclodextrin to a polyolefin polymer and then forming a composition comprising a polyolefin and polyolefin grafted material. The Sun et al. material is not useful in thermoplastic processing to form thermally processed bottles, caps, fiber, etc. Sun et al., taken as a whole, indicate that cyclodextrin can be grafted onto cellulosic fibers for the purpose of acting as odor scavengers in applications such as absorbent articles such as diapers and absorbent pads. The Reference does not teach the important aspect of the thermoplastic material and its teachings cannot successfully be adapted to thermoplastic materials. These substantial differences between Sun et al. and the claimed invention disqualify Sun et al. as a primary teaching reference in this rejection. No one skilled in the art would look to a reference like the Sun et al. reference for forming a thermoplastic material.

The secondary references provide no remedy for the failure of the primary reference in the rejection.

Yahiaoui et al., U.S. Patent No. 6,613,703, teach a fibrous non-woven web or porous film or the like coated with a cyclodextrin containing liquid composition. The coating and fiber is then irradiated to link the cyclodextrin to the underlying fibrous material. The reference does not teach a number of very important aspects of the invention. First, the reference does not teach a thermoplastic polymer chip. The cyclodextrin is grafted directly onto a non-woven fiber using E-beam grafting. Second, the dimensions and weight of the chip are not disclosed in the reference. Further, the reference does not teach blending an unmodified polyolefin resin with a modified polyolefin resin to form a blend of the cyclodextrin modified material in a thermoplastic resin. Lastly, the proportions of the modified polyolefin resin in the polyolefin resin are also not disclosed. One could not use the disclosure in the reference to make a chip and further, one could not use the reference to make the modified polyolefin and then blend the modified polyolefin with a resin to make the blend. The purpose of the reference is to coat a non-woven fiber with a solution containing a cyclodextrin and then graft, using E-beam technology, the cyclodextrin onto the non-woven material. Using the reference technology, the entire proportion of the non-woven material is modified using the cyclodextrin E-beam technology.

Certainly, this Yahiaoui et al. reference is not combinable with the Sun et al. reference. The Sun et al. reference teaches modifying a cellulose fiber while the Yahiaoui et al. reference relates to a non-woven fiber such as a polyolefin. These materials are so fundamentally

different that one of ordinary skill in the art would not substitute a polyolefin non-woven for a cellulosic fiber. Further, there is no reasonable belief present in these references that the E-beam grafting of the cyclodextrin would be useful in the Sun et al. technology or in the technology of the invention. Further, the Sun et al. technology involves, for example, an CD grafted acrylic material while the Yahiaoui et al. reference uses an unsubstituted cyclodextrin in a solution for E-beam grafting. There is so little similarity between the references, one of ordinary skill in the art would not combine them. Lastly, the two references do not teach all the elements of the invention. Neither reference teaches the use of a thermoplastic chip, or the blend of a modified polyolefin in an unmodified polyolefin resin. There is no indication that any of the Sun et al. or Yahiaoui et al. could be successfully applied to grafted thermoplastic materials for blending into a polyolefin resin.

Videau, U.S. Patent No. 5,696,186, additionally fails to teach any aspect of the invention. Videau does not teach a thermoplastic resin chip or a blend of a modified thermoplastic resin and a resin. In Videau, the purpose of the invention is to compatibilize starch with a polyolefin. The unmodified, unsubstituted, ungrafted cyclodextrin material is blended with the starch and then the cyclodextrin starch/blend is then combined with polyolefin under blending conditions to attempt to obtain a compatibilized starch polyolefin blend. The hydrophilic nature of the starch and the structure of the particulate dispersed throughout the polyolefin are different than the polyolefin blend of the invention. Further, the nature of the cyclodextrin in this structure is not grafted. The cyclodextrin is dispersed as an unreacted molecule in the starch layer for the purpose of compatibilizing the starch polyolefin interface. No cyclodextrin is reacted with any polymer to form a grafted polyolefin structure. The Videau reference provides literally no aspect of the claimed invention. There is no thermoplastic chip, there is no blend of a modified polyolefin with a polyolefin resin, and there is no grafting of the cyclodextrin onto a polyolefin backbone. There is only the bare teaching of a polyolefin material as a component of the compositions in Videau, however, there is simply no suggestion the Videau teachings can be utilized in any aspect of cyclodextrin grafted polyolefin technology.

Clearly, no *prima facie* rejection is raised by these references. First, each and every limitation of the claims is not shown in these references. The claims clearly require a thermoplastic chip, a combination of a polyolefin and a polyolefin grafted with dependent

groups comprising a cyclodextrin. Such a composition is not taught in any of the references and is not even suggested by this combination. Secondly, there is no expectation that the references could be modified to result in a successful thermoplastic material as claimed.

The composition in Sun et al. is not thermoplastic in any important sense and the Yahiaoui et al. material after E-beam treatment is likely a poor thermoplastic. The fibrous material of Sun et al. and Yahiaoui et al. do not suggest a thermoplastic chip. Lastly, while there may be some logical connection between the Sun et al. reference and the Yahiaoui et al. reference in derivatizing individual fiber masses with a cyclodextrin, the Videau reference cannot be combined with Sun et al. because Videau uses a non-grafted form of the CD. The references taken as a whole are so different, they could not have been selected otherwise than by impermissible hindsight reconstruction. Even if the Sun et al. and the Yahiaoui et al. references are combined, the references simply result in a cellulosic or other fiber grafted crosslinked with a cyclodextrin material. Clearly, these references do not constitute a *prima facie* reference and the Examiner's rejection must be withdrawn.

With respect to the Examiner's comments on page 3, the Examiner is not considering the claims as filed. The "substrate" in Sun et al. is entirely different than the structure of the invention. The substrate in Sun et al. is a cellulose fiber, not a thermoplastic resin. Sun et al. disclose a cellulosic fiber, but does not disclose a blend of a polyolefin resin and a modified polyolefin resin in the form of a barrier film. Yahiaoui et al. again teach a fibrous layer and does not satisfy the failure of the Sun et al. reference as stated by the Examiner. It would not be obvious to one of ordinary skill in the art to form a thermoplastic chip comprising a polyolefin blend of a cyclodextrin modified resin and a polyolefin resin as claimed based on the fibrous teachings of Sun et al. and Yahiaoui et al. Lastly, it is illogical to suggest that the Videau reference is helpful in this rejection, since the cyclodextrin is unsubstituted and ungrafted and is used for the purpose of compatibilizing starch into a polyolefin.

In view of the above amendments and remarks, Applicants respectfully request a Notice of Allowance. If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the below-listed telephone number.

Respectfully submitted,

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Date

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PATENT TRADEMARK OFFICE

Amendments to the Drawings:

Please replace Figures 2-6 with the attached replacement Figures 2-6.